We claim:

1. A fiber Fabry-Perot filter comprising:

a first reflective surface formed at a first optical fiber end having a fiber core end and a fiber cladding end, wherein said fiber core end has a core contour profile and said fiber cladding end has a cladding contour profile, wherein said core contour profile is a concave contour profile and said cladding contour profile is different from said core contour profile; and

a second reflective surface positioned a selected distance from the first optical fiber end, thereby forming a Fabry-Perot resonance cavity between said first reflective surface and said second reflective surface.

2. The fiber Fabry-Perot filter of claim 1 wherein said cladding contour profile is a concave contour profile which is contoured differently than said core contour profile.

3. The fiber Fabry-Perot filter of claim 2 wherein the concave contour profile of the fiber cladding end of the first fiber end and the concave contour profile of the fiber core end of the first fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the first fiber end.

4. The fiber Fabry-Perot filter of claim 2 wherein the core contour profile has a first radius of curvature and the cladding contour profile has a second radius of curvature and wherein said first and second radii of curvature are different.

5. The fiber Fabry-Perot filter of claim 2 wherein the core contour profile has a radius of curvature which is equal to the radius of curvature a wavefront propagating through said Fabry-Perot resonance cavity.

6. The fiber Fabry-Perot filter of claim 2 wherein the core contour profile has a radius of curvature which is a value selected from the range of about 1 micron to about 20 microns.

7. The fiber Fabry-Perot filter of claim 1 wherein said cladding contour profile is a convex contour profile.

8. The fiber Fabry-Perot filter of claim 7 wherein the convex contour profile of the fiber cladding end of the first fiber end and the concave contour profile of the fiber core end of the first fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the first fiber end.

9. The fiber Fabry-Perot filter of claim 1 wherein said cladding contour profile is a planar contour profile.

10. The fiber Fabry-Perot filter of claim 9 wherein the planar contour profile of the fiber cladding end of the first fiber end and the concave contour profile of the fiber core end of the first fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the first fiber end.

11. The fiber Fabry-Perot filter of claim 1 wherein said second reflective surface is formed on a second optical fiber end having a fiber core end and a fiber cladding end, wherein said fiber core of said second fiber end has a core contour profile that is a concave contour profile and said cladding end of said second fiber end has a cladding contour profile that is different from said core contour profile of said second fiber end.

12. The fiber Fabry-Perot filter of claim 11 wherein said cladding contour profile of said second fiber end is a concave contour profile which is contoured differently than said core contour profile of said second fiber end.

13. The fiber Fabry-Perot filter of claim 12 wherein the concave contour profile of the fiber cladding end of said second fiber end and the concave contour profile of the fiber core end of said second fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the second fiber end.

14. The fiber Fabry-Perot filter of claim 11 wherein said cladding contour profile of said second fiber end is a convex contour profile.

15. The fiber Fabry-Perot filter of claim 14 wherein the convex contour profile of the fiber cladding end of the second fiber end and the concave contour profile of the fiber core end of the second fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the second fiber end.

16. The fiber Fabry-Perot filter of claim 11 wherein said cladding contour profile of said second fiber end is a planar contour profile.

17. The fiber Fabry-Perot filter of claim 16 wherein the planar contour profile of the fiber cladding end of the second fiber end and the concave contour profile of the fiber core end of the second fiber end are discontinuous at a boundary located between the fiber core and the fiber cladding of the second fiber end.

18. The fiber Fabry-Perot filter of claim 1 further comprising a waveguide positioned in said Fabry-Perot resonance cavity, wherein said waveguide is positioned between said first and said second reflective surfaces.

19. The fiber Fabry-Perot filter of claim 18 wherein said waveguide is a segment of single-mode optical fiber.

20. The fiber Fabry-Perot filter of claim 18 wherein said waveguide is operationally coupled to said second reflective surface and wherein said second reflective surface is embedded between said wafer and a second optical fiber end.

21. The fiber Fabry-Perot filter of claim 18 wherein said waveguide has an internal end and an external end, wherein said internal end has a concave contour profile.

22. The fiber Fabry-Perot filter of claim 18 wherein said waveguide has an internal end and an external end, wherein said internal end has a convex contour profile.

23. The fiber Fabry-Perot filter of claim 1 wherein said first reflective surface and said second reflective surface are separated by an air gap and wherein said air gap is said Fabry-Perot resonance cavity.

24. The fiber Fabry-Perot filter of claim 1 wherein said Fabry-Perot resonance cavity has a fixed optical path length.

25. The fiber Fabry-Perot filter of claim 1 wherein said Fabry-Perot resonance cavity has a selectably adjustable optical path length.

26. The fiber Fabry-Perot filter of claim 25 wherein said optical path length of said Fabry-Perot resonance cavity is selectably adjusted electromechanically.

27. The fiber Fabry-Perot filter of claim 26 further comprising a piezoelectric element positioned between said first and second reflective surfaces.

28. The fiber Fabry-Perot filter of claim 25 wherein said optical path length of said Fabry-Perot resonance cavity is selectably adjusted by temperature tuning.

29. The fiber Fabry-Perot filter of claim 25 wherein said second reflective surface is formed on a second optical fiber end and wherein said optical path length of said Fabry-Perot resonance cavity is selectably adjusted by changing the length of one or more substrates to which fibers having said first and second fiber ends are attached.

30 The fiber Fabry-Perot filter of claim 1 wherein said first reflective surface and said second reflective surface comprise a plurality of dielectric thin films.

31 The fiber Fabry-Perot filter of claim 1 wherein said first reflective surface and said second reflective surface comprise at least one metallic thin film.

32. The fiber Fabry-Perot filter of claim 1 having a free spectral range greater than or equal to 100 nm.

33. The fiber Fabry-Perot filter of claim 1 wherein the optical path length between first and second reflective surfaces is about 25 microns.

34. The fiber Fabry-Perot filter of claim 1 having finesse greater than or equal to about 4,000.

35. The fiber Fabry-Perot filter of claim 1 having a glitch free dynamic range equal to about 40 dB.

36. The fiber Fabry-Perot filter of claim 1 having light loss equal to or less than about 3 dB.

37. The fiber Fabry-Perot filter of claim 1 further comprising at least one additional Fabry-Perot resonance cavity.

38. The fiber Fabry-Perot filter of claim 1 wherein said second reflective surface is formed on a second optical fiber end and wherein the optical fibers having said first and second optical fiber ends are held in ferrules.

39. The fiber Fabry-Perot filter of claim 38 wherein the ferrules holding the optical fibers having said first and second optical fiber ends are held with fiber cores aligned within a holder.

40. A fiber Fabry-Perot filter comprising:

a first reflective surface formed at an first optical fiber end having a fiber core end and a fiber cladding end, wherein said fiber core end a core contour profile and said cladding end has a cladding contour profile, wherein said core contour profile and said cladding contour profile are concave contour profiles, and wherein the contour profile of the combination of said core contour profile and said cladding contour profile is discontinuous at a boundary located between the fiber core and the fiber cladding of the first optical fiber end; and

a second reflective surface positioned a selected distance from the first optical fiber end, thereby forming a Fabry-Perot resonance cavity between said first reflective surface and said second reflective surface.

41. The fiber Fabry-Perot filter of claim 40 wherein said core contour profile is offset from said cladding contour profile by a selected offset distance.

42. A fiber Fabry-Perot filter comprising:

a first reflective surface formed at an first optical fiber end having a fiber core end and a fiber cladding end, wherein said fiber core end a core contour profile and said cladding end has a cladding contour profile, wherein said core contour profile is a concave contour profile and said cladding contour profile is different from said core contour profile;

a second reflective surface positioned a selected distance from the first optical fiber end , thereby forming a Fabry-Perot resonance cavity between said first reflective surface and said second reflective surface; and

a waveguide positioned between said first and second reflective surfaces having internal and external ends, wherein said internal end is operationally connected to said second reflective surface.

43. The fiber Fabry-Perot filter of claim 42 wherein said external end of said waveguide has a concave contour profile.

44. The fiber Fabry-Perot filter of claim 43 wherein said external end of said waveguide has substantially the same concave contour profile as the fiber core end of the first optical fiber end.

45. The fiber Fabry-Perot filter of claim 42 wherein said external end of said waveguide has a convex contour profile.

46. The fiber Fabry-Perot filter of claim 42 wherein said external end of said waveguide has substantially the same contour profile as the cladding contour profile of the first optical fiber end.

47. A method for improving the optical properties of a fiber Fabry-Perot filter in which the Fabry-Perot cavity is formed between two internal mirrored fiber ends which comprises the step of:

providing a concave mirror at the fiber core of at least one of the internal mirrored fiber ends.

48. The method for of claim 47 wherein a concave mirror is provided at both internal mirrored fiber ends.

49. The method of claim 47 further comprising the step of:

providing a convex mirror at the fiber cladding of at least one of the internal mirrored fiber ends.

50. The method of claim 47 further comprising the step of:

providing a planar mirror at the fiber cladding of at least one of the internal mirrored fiber ends.

51. The method of claim 47 further comprising the step of:

providing a concave mirror at the fiber cladding of at least one of the internal mirrored fiber ends, such that the concave mirror of the core and that of the cladding of the same fiber end have curvature that is different.

52. The method of claim 51 wherein that the concave mirror of the core and that of the cladding of the same fiber end have different radii of curvature.

53. The method of claim 48 further comprising the step of:

providing a convex mirror at the cladding of one internal mirrored fiber end and providing a flat mirror at the cladding of the other internal mirrored fiber end.

54. The method of claim 48 further comprising the step of:

providing a convex mirror at the cladding of one internal mirrored fiber end and providing a convex mirror at the cladding of the other internal mirrored fiber end.

55. The method of claim 48 further comprising the step of:

providing a convex mirror at the cladding of one internal mirrored fiber end and providing a concave mirror at the cladding of the other internal mirrored fiber end wherein the concave mirror of the core and that of the cladding of the same fiber end have different contour profiles.

56. The method of claim 55 wherein the concave cladding mirror and the concave core mirror have different radii of curvature.

57. The method of claim 48 further comprising the step of:

providing a flat mirror at the cladding of one internal mirrored fiber end and providing a concave mirror at the cladding of the other internal mirrored fiber end wherein the concave mirror of the core and that of the cladding of the same fiber end have different contour profiles.

58. The method of claim 48 further comprising the step of:

providing a flat mirror at the cladding of one internal mirrored fiber end and providing a flat mirror at the cladding of the other internal mirrored fiber end.

59. The method of claim 48 further comprising the step of:

providing a concave mirror at the cladding of one internal mirrored fiber end and providing a concave mirror at the cladding of the other internal mirrored fiber end wherein the concave mirror of the core and that of the cladding of the same fiber end have different contour profiles.